Polycyclic Aromatic Compounds (PACs)

Chemical Information

Polycyclic Aromatic Compounds (PACs), also known as polycyclic aromatic hydrocarbons (PAHs), are a group of over 100 different chemicals that are characterized by hydrogen and carbon arranged in two or more fused benzene rings. PACs originate from both natural and anthropogenic sources. As pure chemicals, PACs generally exist as colorless, white, or pale yellow-green solids. Most PACs are found as a mixture of two or more PACs. The TRI PAC group includes the following chemicals: benzo(a)Anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, benzo(j,k)fluorine, benzo(k)fluoranthene, benzo(rst)pentaphene, benzo(a)Phenanthrene, benzo(a)pyrene, dibenz(a,h)acridine, dibenz(a,j)acridine, dibenzo(a,h)Anthracene, dibenzo(c,g)carbazole, dibenzo(a,e)fluoranthene, dibenzo(a,e)pyrene, dibenzo(a,h)pyrene, dibenzo(a,l)pyrene, dimethylbenz(a)Anthracene, indeno[1,2,3-cd]pyrene, methylcholanthrene, methylchrysene, nitropyrene

General Uses - Most, if not all, PACs are byproducts of combustion or impurities and not created for use themselves. PACs may be formed as byproducts of both human and natural activities. They are produced or emitted during thermal processes such as the incomplete combustion of organic compounds, pyrolysis, or the processing of fossil fuels, bitumens, or nonfossil fuels. There are presently no known commercial uses for PACs. In the past, some PACs were produced in small quantities for research purposes or used in medicines or in the production of dyes, plastics, or pesticides. Other industrial contributors are the aerospace industry, coke ovens (various activities), petroleum refining, and primary aluminum production. PACs are used to conduct research, and to make dyes, plastics, pesticides and medicines.

Potential Hazards - PACs are harmful by ingestion, inhalation and skin absorption. In addition, most PACs emit toxic fumes when heated to decomposition. Many PACs have caused tumors in laboratory animals that were exposed to the chemicals through their food, from breathing contaminated air and when it was applied to their skin. Although there are no human data that specifically link exposure to PACs to human cancers, PACs are a component of mixtures that have been associated with human cancer. These include coal tar, soots, coke oven emissions and cigarette smoke.

Summary Analysis– Polycyclic Aromatic Compounds (PACs)

- In 2003, the 12,672,606 pounds of PACs represented 16 percent of the total quantity of PCs. In 2003, there was a 52 percent increase in the total quantity of PACs, compared to the quantity reported in 1999. Likewise, there was a 500 percent increase in the number of facilities that reported PACs. However, much of this increase in both quantity and number of reporting facilities may be due to the lower TRI reporting threshold that became effective for the PACs in 2000.
- The use of disposal to manage PACs decreased – to less than 8 percent in 2003. Use of energy recovery increased but has declined since 2002 – to about 47 percent in 2003. Since 1999, treatment of PACs has steadily increased to 46 percent of the total quantity in 2003. There was a steady decrease in the recycling of PACs – from almost 16.6 million pounds in 2000 to about 12.7 million pounds in 2003.
- Of the 661facilities that reported PACs in 2003, 6 facilities reported over 53 percent of the total quantity of this chemical. Twenty facilities reported 87 percent of the total quantity.

- PACs were reported by facilities in every Region. In 2003, over 53 percent of the PACs were reported by facilities in Regions 6. Facilities in Region 4 reported over 28 percent of the total quantity of PACs.
- In 2003, facilities in 7 of the 10 Regions reported a decreased quantity (almost 3.9 million pounds) of PACs, compared to the quantities reported in 2000.
- In 1999-2003, facilities in almost every State and territory reported a PC quantity of PACs. PACs reported by facilities in 10 states accounted for over 90 percent of the total quantity of this chemical in 2003. Facilities in Texas reported about 26 percent of the total quantity of PACs in 2003.
- In 1999-2003, facilities in 124 industry sectors (SIC codes) reported a PC quantity of PACs. In 2003, facilities in 86 of these industry sectors reported PACs. PACs reported by facilities in 11 industry sectors accounted for over 94 percent of the total quantity of this chemical in 2003.

National Trends - Polycyclic Aromatic Compounds (PACs). Exhibit 4.215 presents the total PC quantity (pounds) of PACs in 1999 to 2003, showing the disposal, treatment, energy recovery, as well as recycling quantities. In 2003, the 12,672,606 pounds of PACs represented 16 percent of the total quantity of PCs. In 2003, there was a 52 percent increase in the total quantity of PACs, compared to the quantity reported in 1999. Likewise, there was a 500 percent increase in the number of facilities that reported PACs. However, much of this increase in both quantity and number of reporting facilities may be due to the lower TRI reporting threshold that became effective for the PACs in 2000. Since 2002, the number of reporting facilities remained relatively constant and there has been a 26 percent decrease in the quantity of PACs reported.

In 1999-2003, the use of disposal to manage PACs decreased – to less than 8 percent in 2003. Use of energy recovery increased but has declined since 2002 – to about 47 percent in 2003. Since 1999, treatment of PACs has steadily increased to 46 percent of the total quantity in 2003. There was a steady decrease in the recycling of PACs – from almost 16.6 million pounds in 2000 to about 12.7 million pounds in 2003.

Exhibit 4. 215. National-Level Information for PACs (1999-2003)

	1999	2000	2001	2002	2003	Percent Change (1999-2003)	Management Method - - Percent of Quantity of this Chemical in 2003
Number of Facilities	125	620	657	639	661	428.8%	
Disposal Quantity (lbs.)	2,314,949	3,219,148	1,608,663	723,233	965,512	-58.3%	7.6%
Energy Recovery Quantity (lbs.)	4,200,601	8,676,829	8,232,000	6,855,734	5,942,302	41.5%	46.9%
Treatment Quantity (lbs.)	1,838,629	4,673,183	4,260,409	5,192,596	5,764,792	213.5%	45.5%
Priority Chemical Quantity (lbs.)	8,354,179	16,569,160	14,101,072	12,771,563	12,672,606	51.7%	
Recycling Quantity (lbs.)	3,500,044	2,898,037	2,647,713	2,332,349	1,617,621	-53.8%	

Exhibit 4.216 shows the number of facilities that reported PACs within various quantity ranges. Of the 661facilities that reported PACs in 2003, 6 facilities reported over 53 percent of the total

quantity of this chemical. Twenty facilities reported 87 percent of the total quantity and 57 facilities accounted for over 97 percent of the totals quantity of PACs in 2003.

Exhibit 4. 216. Distribution of Facilities that Reported Quantities for PACs (2003)

Polycyclic Aromatic Compounds (12,672,606 pounds)		
Quantity Reported	**Number of Facilities Reporting this quantity**	**Percent of Total Quantity for this Priority Chemical**
up to 10 pounds	216	less than 0.1%
between 11 - 100 pounds	167	0.1%
between 101 -1,000 pounds	137	0.4%
between 1,001 - 10,000 pounds	84	2.3%
between 10,001 - 100,000 pounds	37	10.2%
between 100,001 - 1 million pounds	14	33.7%
> 1 million pounds	6	53.3%

EPA Region Trends- Polycyclic Aromatic Compounds (PACs). Exhibit 4.217 shows the quantity (pounds) of PACs for facilities in each of the 9 EPA Regions that reported this PC in 1999 to 2003. PACs were reported by facilities in every Region. In 2003, over 53 percent of the PACs were reported by facilities in Regions 6. Facilities in Region 4 reported over 28 percent of the total quantity of PACs. As noted above, in 2000, a lower TRI reporting threshold became effective for the PACs. As such, changes are linked to the 2000 reporting year rather than 1999.

In 2003, facilities in 7 of the 10 Regions reported a decreased quantity (almost 3.9 million pounds) of PACs, compared to the quantities reported in 2000. For example, facilities in Region 4 reported 3 million less pounds of PACs in 2003 than in 2000 and Region 10 facilities reported 2 million less pounds. The quantity of PACs increased in Regions 1, 6, and 7. Most of the 1.4 million pounds increase reported by facilities in Region 6 was reported by 1 facility in Texas

Exhibit 4. 217. Quantity of PACs Reported by EPA Regions (1999-2003)

EPA REGION	**1999**	**2000**	**2001**	**2002**	**2003**	**Percent Change in Quantity (2000-2003)**	**Percent Of the Total Priority Chemical quantity (2003)**
6	1,106,580	5,307,807	5,220,598	7,625,930	6,723,497	26.7%	53.06%
4	4,488,951	6,592,650	4,724,594	2,088,124	3,576,054	-45.8%	28.22%
3	251,119	827,552	1,273,175	633,639	733,165	-11.4%	5.79%
5	768,399	1,122,189	995,992	974,765	695,527	-38.0%	5.49%
1	25,607	185,086	541,959	614,364	607,585	228.3%	4.79%
2	72,712	218,069	197,102	144,690	196,815	-9.7%	1.55%
8	745	156,567	127,706	54,714	62,894	-59.8%	0.50%
10	1,618,484	2,114,163	977,916	616,841	40,703	-98.1%	0.32%
7	2,910	26,634	28,108	13,079	32,320	21.3%	0.26%
9	18,672	18,443	13,921	5,417	4,046	-78.1%	0.03%
Total	**8,354,179**	**16,569,160**	**14,101,072**	**12,771,563**	**12,672,606**	**-23.5%**	

Exhibit 4. 218. Distribution of Facilities Reporting polycyclic aromatic compounds in 2003 & Quantities of polycyclic aromatic compounds Reported in 2003 per Region (note: The three facilities in AS and MP are not mapped)

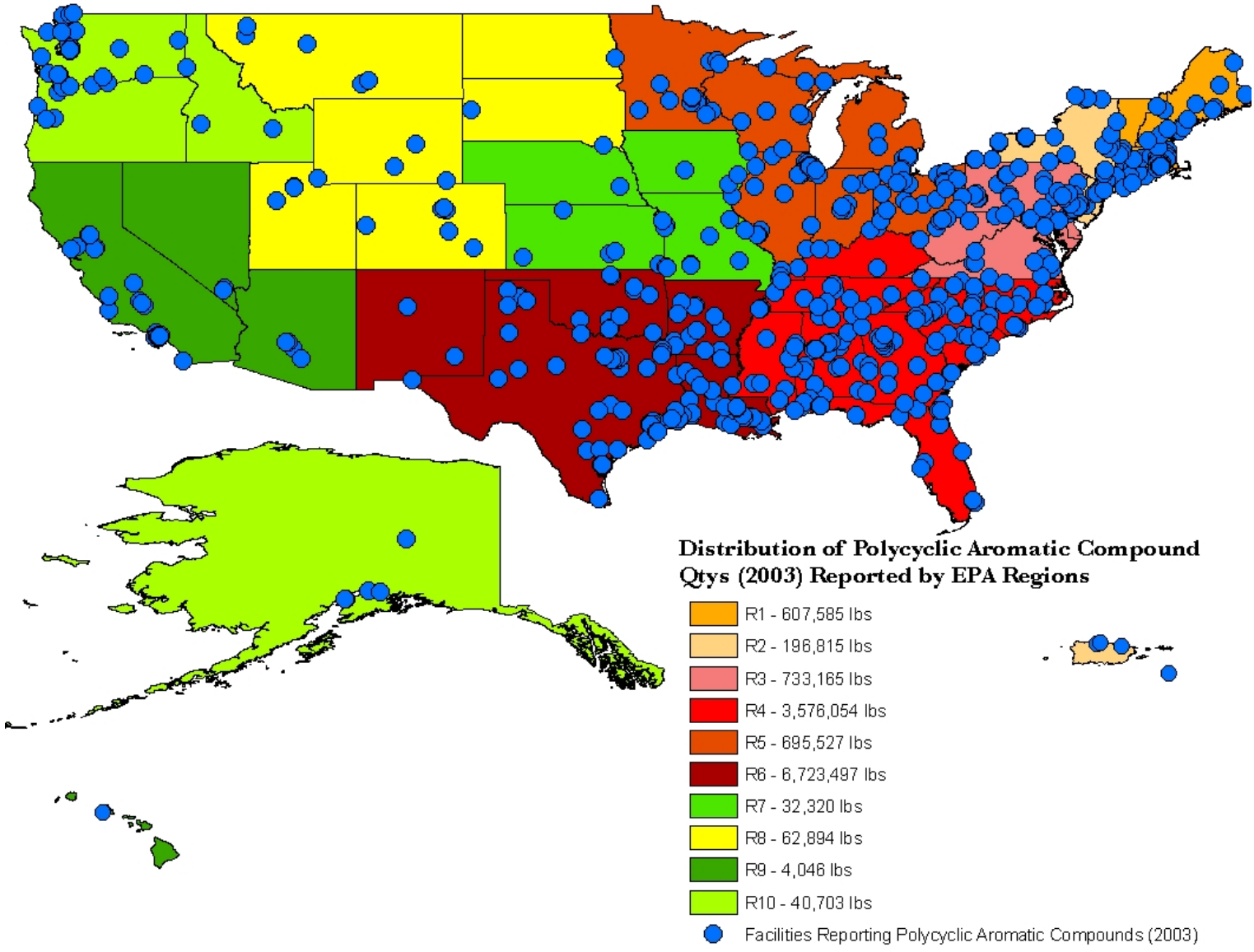


Exhibit 4.219 shows how PACs were managed by facilities in each of the 10 EPA Regions in 2003. Region 6 facilities used onsite energy recovery for about 52 percent of the PACs and treatment (primarily onsite) for another 44 percent of the PACs quantity. Region 4 facilities used onsite energy recovery for about 37 percent of the PACs and treatment (primarily onsite) for another 58 percent of the PACs quantity. Over 55 percent of the PACs in Region 3 were managed via offsite disposal; 35 percent by onsite energy recovery. Facilities in Region 7 used treatment (primarily onsite) for about 70 percent of the PACs; over 17 percent went to offsite land disposal and 9 percent to onsite energy recovery. Almost 97 percent of the PACs in Region 1 were managed using energy recovery (primarily onsite). In Region 2, facilities reported that treatment (primarily onsite) was used for about 76 percent of the PACs; 21 percent went to energy recovery (primarily onsite). About 87 percent of the PACs reported by facilities in

Region 8 went to energy recovery (primarily onsite). The PACs in Region 10 were managed by treatment (41 percent – mostly onsite), energy recovery (30 percent – mostly offsite), and land disposal (over 29 percent –mostly offsite). Over 76 percent of the PACs reported by facilities in Region 7 were treated, primarily onsite. Almost 64 percent of the PACs in Region 9 were land disposed (mostly onsite) and 35 percent was treated offsite. In 2003, recycling of PACs was reported in each Region with most of the recycling reported by facilities in Regions 3,4,5, and 6.

Exhibit 4. 219. Management Methods for PACs, By EPA Region (2003)

EPA Region	Disposal		Energy Recovery		Treatment		Recycling	
	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
6	1,797	236,911	3,504,952	38,530	2,909,801	31,506	506,280	353,087
4	52,127	110,140	1,337,056	8,430	2,046,712	21,589	269,063	31,876
3	517	405,974	259,257	8,289	36,770	22,359	235,757	52,248
5	3,520	119,415	25,583	61,804	479,624	5,581	153,831	712
1	1,549	2,810	586,027	1,274	15,348	578	0	78
2	119	7,252	39,070	1,769	145,793	2,812	2,508	119
8	3,341	1,112	53,288	1,464	90	3,598	780	305
10	1,091	10,871	2,477	9,683	16,144	438	10,611	51
7	83	4,319	2,046	1,218	22,016	2,638	153	144
9	1,917	650	0	83	1	1,396	0	21
Total	66,061	899,451	5,809,757	132,545	5,672,299	92,493	1,178,982	438,639

State Trends- Polycyclic Aromatic Compounds (PACs). In 1999-2003, facilities in almost every State and territory reported a PC quantity of PACs. Exhibit 4.220 shows the quantities of PACs reported in 10 states where facilities accounted for over 90 percent of the total quantity of this chemical in 2003. Facilities in Texas reported about 26 percent of the totals quantity of PACs in 2003. As noted above, in 2000, a lower TRI reporting threshold became effective for the PACs. As such, changes are linked to the 2000 reporting year rather than 1999. A decreased quantity of PACs was reported in 2 of these 10 states, Tennessee (-3.6 million pounds) and North Carolina (- 110,000 pounds). The quantity of PACs increased in the other 8 states. Many of the increased quantities were substantial, including almost 912,000 pounds reported by Texas facilities and 806,000 pounds by facilities in Kentucky. An increase of more than 534,000 pounds was reported by facilities in Maine.

Exhibit 4. 220. State-Level Information for PACs (1999-2003)

State	1999	2000	2001	2002	2003	Change in Quantity (2000-2003)	Percent Change in Quantity (2000-2003)	Percent of Total Quantity of this Priority Chemical (2003)
Texas	403,577	2,401,010	2,435,035	3,403,118	3,312,688	911,677	38.0%	26.1%
Louisiana	36,262	1,954,173	1,928,611	2,175,615	2,271,946	317,773	16.3%	17.9%
Kentucky	192,649	727,411	709,038	865,554	1,533,399	805,988	110.8%	12.1%
Tennessee	4,163,305	4,843,397	3,223,956	555,317	1,274,029	-3,569,368	-73.7%	10.1%
Arkansas	622,457	811,269	630,017	749,267	824,374	13,105	1.6%	6.5%
Pennsylvania	72,506	112,944	350,488	306,730	567,362	454,418	402.3%	4.5%
Maine	0	1,146	474,454	541,375	525,393	524,247	45746.3%	4.1%
Indiana	44,794	397,740	365,449	440,966	460,268	62,528	15.7%	3.6%
North Carolina	9,000	495,362	231,354	221,772	385,129	-110,233	-22.3%	3.0%
Oklahoma	44,284	141,351	226,911	1,297,908	314,445	173,094	122.5%	2.5%

Exhibit 4. 221. Trends Analysis on States with Largest Quantity Increase and Decrease (1999 – 2003): Facilities in Texas and Tennessee

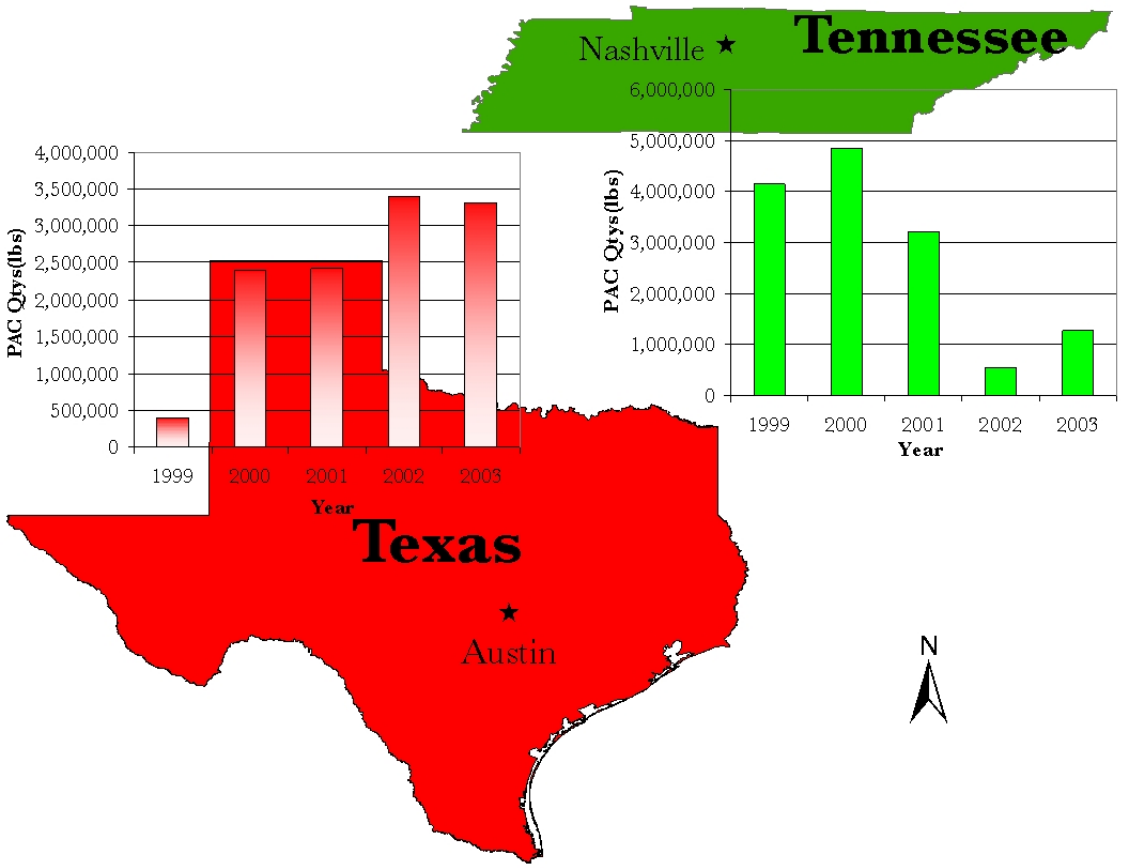


Exhibit 4.223 shows how PACs were managed by facilities in the 10 states that reported over 90 percent of the total PC quantity of this chemical in 2003. Most of the facilities in these states used onsite energy recovery and/or onsite treatment for the majority of the PACs. For example:

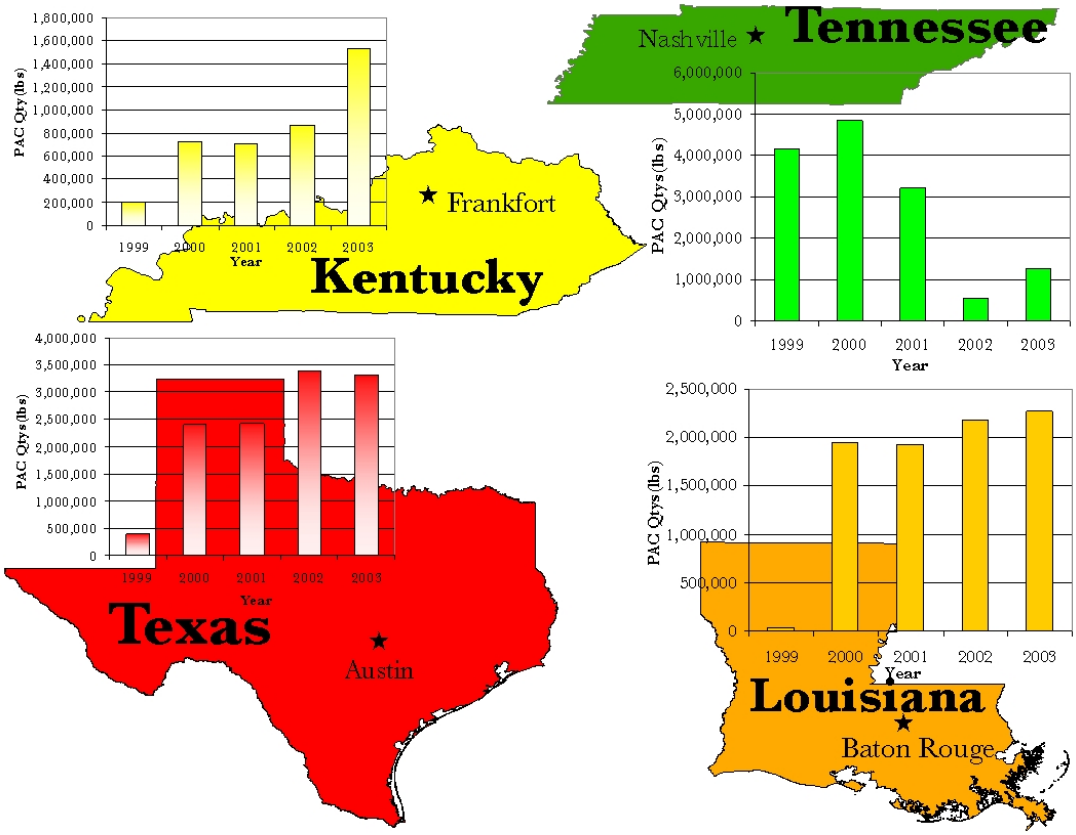
Onsite Energy Recovery

- Texas – 59.6 percent of PACs
- Louisiana – 62.9 percent of PACs
- Tennessee – 77.1 percent of PACs
- Maine – 99.7 percent of PACs
- Pennsylvania – 45.7 percent of PACs

Onsite Treatment

- Texas – 39.6 percent of PACs
- Kentucky – 82.9 percent of PACs
- Arkansas – 98.1 percent of PACs
- Louisiana – 33 percent of PACs
- Indiana – 98 percent of PACs
- North Carolina – 98.4 percent of PACs
- Tennessee – 19.7 percent of PACs

Exhibit 4.222. Trends Analysis of States Reporting 4 Largest Quantities of Polycyclic Aromatic Compounds (2003)



Facilities in Pennsylvania and Oklahoma used offsite disposal to manage a significant portion of their PACs—50 percent and 46.5 percent, respectively. Significant quantities of PACs were recycled in many of these states in 2003. Most of the recycled quantities were reported by facilities in Louisiana, Pennsylvania, Texas, Oklahoma, and Indiana.

Exhibit 4. 223. Management of PACs in States (2003)

State	Total Priority Chemical Quantity (2003)	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
Texas	3,312,688	998	7,828	1,972,863	12,769	1,311,107	7,122	260,981	17,339
Louisiana	2,271,946	395	81,952	1,429,319	303	749,416	10,562	160,299	335,356
Kentucky	1,533,399	6	6,982	248,460	2,296	1,271,286	4,369	6,300	415
Tennessee	1,274,029	36,642	744	982,517	2,156	251,005	965	2,806	25,195
Arkansas	824,374	147	864	0	997	808,766	13,599	0	7
Pennsylvania	567,362	101	283,831	259,226	3,114	15,065	6,026	233,124	52,174
Maine	525,393	127	915	523,972	48	10	321	0	1
Indiana	460,268	2	8,876	0	5	450,956	428	80,514	1
North Carolina	385,129	141	5,304	0	341	378,989	353	0	135
Oklahoma	314,445	256	146,224	102,770	24,461	40,511	223	85,000	384

Industry Sector (SIC) Trends- Polycyclic Aromatic Compounds (PACs). In 1999-2003, facilities in 124 industry sectors (SIC codes) reported a PC quantity of PACs. In 2003, facilities in 86 of these industry sectors reported PACs. Exhibit 4.224 shows the quantities of PACs reported by 11 industry sectors where facilities accounted for over 94 percent of the total quantity of this chemical in 2003. Again, as noted previously, in 2000, a lower TRI reporting threshold became effective for the PACs. As such, observed changes are linked to the 2000 reporting year rather than 1999. In 2003, decreased quantities of PACs were reported by facilities in 3 of these 11 industry sectors: SIC 3624 --Carbon and graphite products (-3.7 million pounds), SIC 3334 – Primary Aluminum (-1.7 million pounds), and SIC 2865-Cyclic crudes and intermediates (-249,000 pounds). Increased quantities of PACs were reported for the other 8 industry sectors. Facilities in SIC 2911 (Petroleum refining) reported an increase of almost 1 million pounds. Large increase also were reported by facilities in SIC 3312 --Blast Furnaces and steel mills and SIC 2824—Organic fibers, noncellulosic.

Exhibit 4. 224. Industry Sector-Level Information for PACs (1999-2003)

Primary SIC Code	SIC Description	Number of Facilities for this SIC Code (2003)	1999	2000	2001	2002	2003	Change in Quantity (2000-2003)	Percent Change in Quantity (2000-2003)	Percent of Total Quantity of this Priority Chemical (2003)
2895	Carbon black	19	0	3,708,379	3,417,056	3,879,720	4,008,847	300,468	8.1%	31.6%
3624	Carbon and graphite products	18	5,065,055	6,415,783	4,292,839	1,753,730	2,723,779	-3,692,004	-57.5%	21.5%
2911	Petroleum refining	84	101,353	656,112	878,206	2,663,901	1,649,830	993,718	151.5%	13.0%
3334	Primary aluminum	14	2,098,213	3,123,285	1,798,358	1,394,522	1,436,079	-1,687,206	-54.0%	11.3%
2992	Lubricating oils and greases	1	0	356,394	318,494	421,399	444,658	88,264	24.8%	3.5%
2037	Frozen fruits and vegetables	1	0	0	345,565	386,531	381,671	381,671	NA	3.0%
2491	Wood preserving	46	0	297,699	578,814	409,883	368,647	70,948	23.8%	2.9%
3312	Blast furnaces and steel mills	6	43,282	20,928	21,963	14,585	279,226	258,298	1234.2%	2.2%
3011	Tires and inner tubes	37	169,892	204,787	263,445	173,853	250,875	46,088	22.5%	2.0%
2865	Cyclic crudes and intermediates	10	395,391	488,224	414,759	518,982	239,008	-249,217	-51.0%	1.9%
2824	Organic fibers, noncellulosic	4	0	5,008	26,975	87,238	183,812	178,804	3570.3%	1.5%

Exhibit 4.225 shows how PACs were managed by facilities in the 11 industry sectors that reported over 94 percent of this PC in 2003. Most of the facilities in these states used onsite energy recovery and/or onsite treatment for the majority of the PACs.

For example:

Onsite Treatment

- SIC 3334 (Primary Aluminum) – 98.1 percent of PACs
- SIC 3624 (Carbon and graphite products) – 52.5 percent of PACs
- SIC 2911 (Petroleum refining) – 83.7 percent of PACs
- SIC 2992 (Lubricating oils and greases) – 100 percent of PACs
- SIC 2824 (Organic fibers, noncellulosic) – 55.4 percent of PACs

Onsite Energy Recovery

- SIC 2895 (Carbon Black) – 84.7 percent of PACs
- SIC 3624 (Carbon and graphite products) – 45.2 percent of PACs
- SIC 2037 (Frozen fruits and vegetables) – 100 percent of PACs
- SIC 2491 (Wood Preserving) – 69.8 percent of PACs
- SIC 2824 (Organic fibers, noncellulosic) – 44.6 percent of PACs

Offsite Disposal

- SIC 3312 (Blast Furnaces and steel mills) – 98.2 percent of PACs
- SIC 3011 (Tires and inner tubes) – 98.4 percent of PACs
- SIC 2865 (Cyclic crudes and intermediates) – 93.0 percent of PACs

Exhibit 4. 225. Management of PACs in Industry Sectors (SIC Codes) (2003)

SIC Code	SIC Description	Onsite Disposal	Offsite Disposal	Onsite Energy Recovery	Offsite Energy Recovery	Onsite Treatment	Offsite Treatment	Onsite Recycling	Offsite Recycling
2895	Carbon black	655	1,751	3,394,989	0	611,300	152	0	0
3624	Carbon and graphite products	36,588	18,697	1,230,988	1,729	1,430,923	4,854	265,384	25,476
2911	Petroleum refining	3,998	17,924	156,188	83,150	1,380,757	7,812	370,411	8,148
3334	Primary aluminum	2,429	23,167	0	0	1,408,576	1,907	136,874	0
2992	Lubricating oils and greases	0	0	0	0	444,658	0	0	0
2037	Frozen fruits and vegetables	0	0	381,671	0	0	0	0	0
2491	Wood preserving	0	33,402	257,257	28,778	7,630	41,580	18,830	0
3312	Blast furnaces and steel mills	0	274,218	0	0	5,007	1	223,516	51,000
3011	Tires and inner tubes	4	246,907	0	2,893	0	1,071	86,200	7,331
2865	Cyclic crudes and intermediates	0	222,276	2,076	215	1,010	13,431	5,211	0
2824	Organic fibers, noncellulosic	0	11	82,007	0	101,794	0	0	0

Recycling. Exhibit 4.226 provides some indication of the extent to which facilities in certain industry sectors recycled at least 100 pounds of PACs in 1999-2003, rather than manage it as a waste. For those year(s), the facility did not report a PC quantity, i.e., a quantity managed via land disposal, energy recovery, or treatment.

Exhibit 4. 226. Facilities reporting Recycling but not a Priority Chemical quantity (1999-2003)

			1999		2000		2001		2002		2003	
Number of Facilities	EPA Region	State	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle	Onsite Recycle	Offsite Recycle
SIC 2491 -- Wood preserving												
1	1	Connecticut	0	0	345	0	296	0	614	0	596	0
SIC 2865 -- Cyclic crudes and intermediates												
1	10	Oregon	150,000	0	0	0	0	0	0	0	0	0
SIC 2869 -- Industrial organic chemicals, nec												
1	6	Texas	0	0	0	39,000	0	48,000	0	48,000	0	47,900
SIC 2911 -- Petroleum refining												
1	6	Louisiana	0	0	0	4,122	0	0	0	7,777	0	47
2	9	California	0	0	0	1	0	508	0	0	11,000	0
SIC 2951 -- Asphalt paving mixtures and blocks												
1	1	Massachusetts	0	0	1,223	0	793	0	1,961	0	2,130	0
3	1	New Hampshire	0	0	0	0	125	0	778	0	229	0
2	4	North Carolina	0	0	255	0	0	0	0	0	161	0
1	4	Georgia	0	0	10,126	0	0	0	0	0	0	0
2	4	Florida	0	0	0	0	0	0	1,424	0	1,240	0
3	4	Tennessee	0	0	809	0	646	0	677	0	0	0
2	4	Mississippi	0	0	414	0	829	0	555	0	564	0
1	5	Ohio	0	0	0	117	0	96	0	170	0	193
1	6	Oklahoma	0	0	107	0	0	0	0	0	2	0
1	6	Texas	0	516	0	8	0	0	0	0	0	0
1	7	Kansas	0	0	278	0	0	0	0	0	0	0
SIC 2952 -- Asphalt felts and coatings												
1	3	Maryland	0	0	0	507	0	0	0	0	0	0
1	5	Indiana	0	0	0	0	0	0	0	486	0	330
1	5	Illinois	0	0	0	113	0	113	0	143	0	0
SIC 3011-- Tires and inner tubes												
2	4	South Carolina	0	0	0	0	0	0	2,200	22,151	0	0
2	4	Georgia	0	0	0	2,300	0	0	0	0	0	331
1	5	Ohio	0	0	0	380	0	0	0	0	0	0
SIC 3081-- Unsupported plastics, film, and sheet												
1	2	New Jersey	0	0	0	0	0	0	0	263	0	0
SIC 3312 -- Blast Furnaces and steel mills												
1	2	New York	12,000	0	13,801	0	14,740	0	14,083	0	13,613	0
1	3	Pennsylvania	12,000	0	19,160	0	455	0	521	0	658	0
1	4	Alabama	2,452	0	2,888	0	3,697	0	3,970	0	4,625	0
SIC 3334 --Primary aluminum												
1	8	Montana	0	0	2,008	0	0	0	0	0	0	0
SIC 3612 -- Transformers, except electronic												
1	6	Wisconsin	0	0	0	14,586	0	0	0	0	0	0
SIC 3645 --Residential lighting fixtures												
1	5	Ohio	0	0	0	200	0	0	0	0	0	0
SIC 5171-- Petroleum bulk stations and terminals												
1	1	Maine	0	0	0	463	0	0	0	0	0	0
2	2	New Jersey	59	576	0	0	2	576	0	240	0	3
1	2	New York	0	0	0	3,802	0	0	0	0	0	0
2	3	Virginia	0	0	0	3	0	0	0	22	0	160
1	4	Tennessee	0	0	0	291	0	0	0	0	0	0
1	6	Texas	0	0	0	0	462	0	481	0	303	0
1	6	New Mexico	0	0	0	0	0	121	0	133	0	0